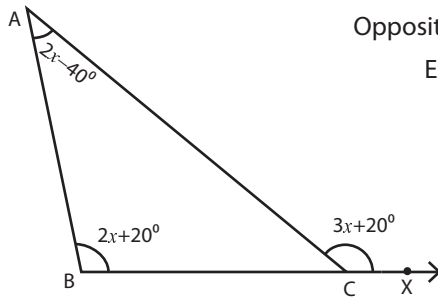


Triangle - Exterior Angle

The measure of an exterior angle of a triangle is equal to sum of the measures of opposite interior angles.



Exterior angle : $\angle ACX$

Opposite interior angles : $\angle A$ and $\angle B$

Exterior angle = Sum of opposite interior angles

$$\angle ACX = \angle A + \angle B$$

$$3x+20^\circ = 2x-40^\circ + 2x+20^\circ$$

$$x+20^\circ = 4x-20^\circ$$

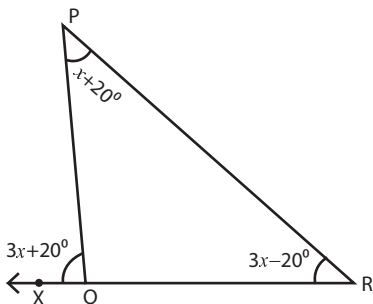
$$4x - 3x = 20^\circ + 20^\circ$$

$$x = 40^\circ$$

$$\angle ACX = 3 \times 40^\circ + 20^\circ = 140^\circ$$

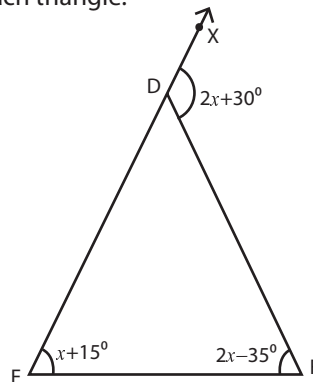
Find the value of x and unknown exterior angle for each triangle.

1)



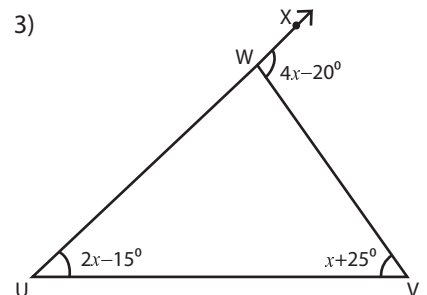
$$x = \underline{\hspace{2cm}} ; \angle PQX = \underline{\hspace{2cm}}$$

2)



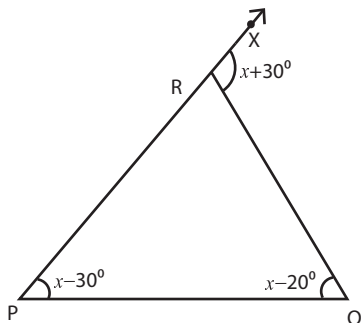
$$x = \underline{\hspace{2cm}} ; \angle FDX = \underline{\hspace{2cm}}$$

3)



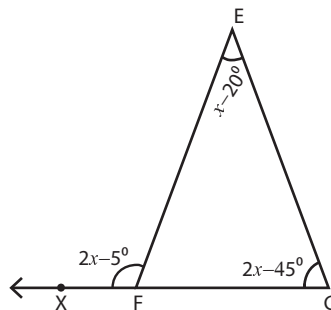
$$x = \underline{\hspace{2cm}} ; \angle VWX = \underline{\hspace{2cm}}$$

4)



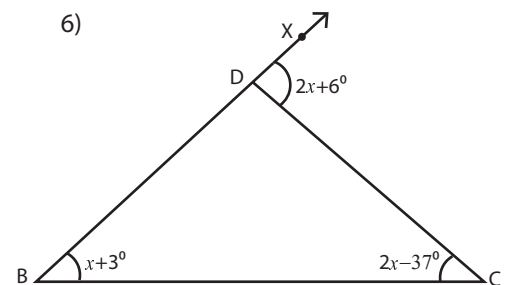
$$x = \underline{\hspace{2cm}} ; \angle QRX = \underline{\hspace{2cm}}$$

5)



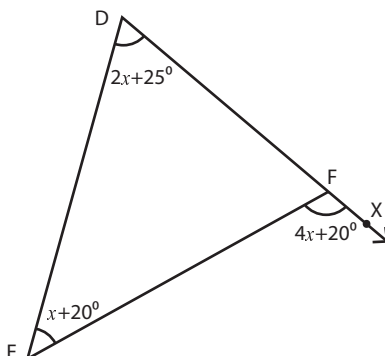
$$x = \underline{\hspace{2cm}} ; \angle EFX = \underline{\hspace{2cm}}$$

6)



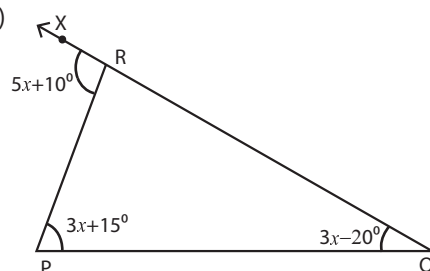
$$x = \underline{\hspace{2cm}} ; \angle CDX = \underline{\hspace{2cm}}$$

7)



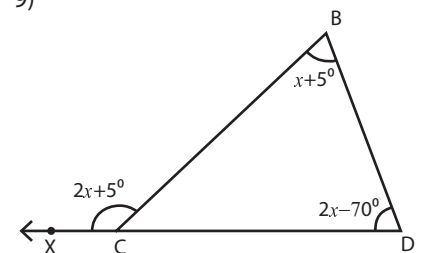
$$x = \underline{\hspace{2cm}} ; \angle EFX = \underline{\hspace{2cm}}$$

8)



$$x = \underline{\hspace{2cm}} ; \angle PRX = \underline{\hspace{2cm}}$$

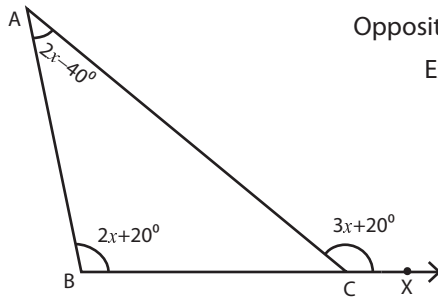
9)



$$x = \underline{\hspace{2cm}} ; \angle BCX = \underline{\hspace{2cm}}$$

Answer key

The measure of an exterior angle of a triangle is equal to sum of the measures of opposite interior angles.



Exterior angle : $\angle ACX$

Opposite interior angles : $\angle A$ and $\angle B$

Exterior angle = Sum of opposite interior angles

$$\angle ACX = \angle A + \angle B$$

$$3x+20^\circ = 2x-40^\circ + 2x+20^\circ$$

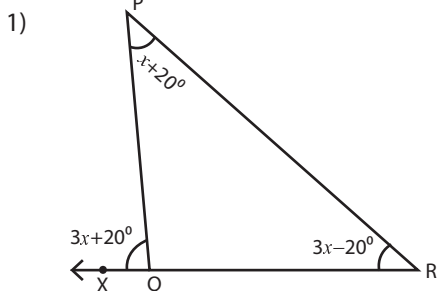
$$x+20^\circ = 4x-20^\circ$$

$$4x - 3x = 20^\circ + 20^\circ$$

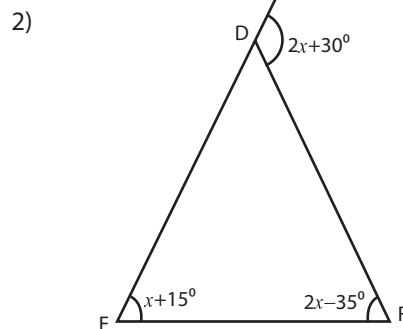
$$x = 40^\circ$$

$$\angle ACX = 3 \times 40^\circ + 20^\circ = 140^\circ$$

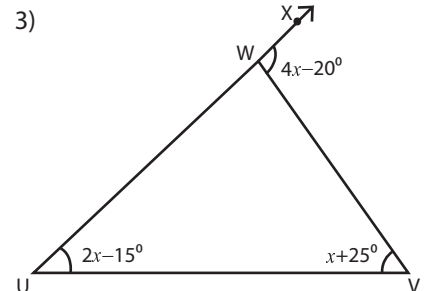
Find the value of x and unknown exterior angle for each triangle.



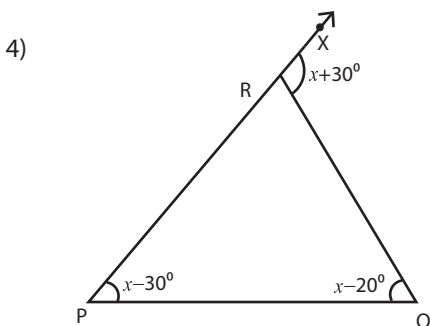
$$x = 20^\circ ; \angle PQX = 80^\circ$$



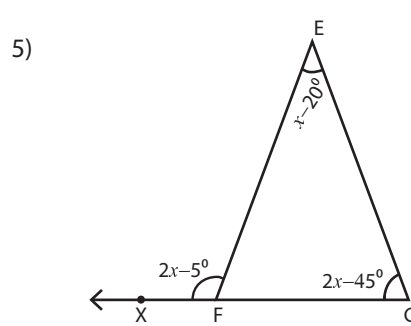
$$x = 50^\circ ; \angle FDX = 130^\circ$$



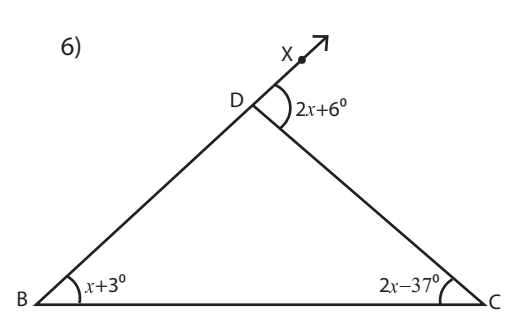
$$x = 30^\circ ; \angle VWX = 100^\circ$$



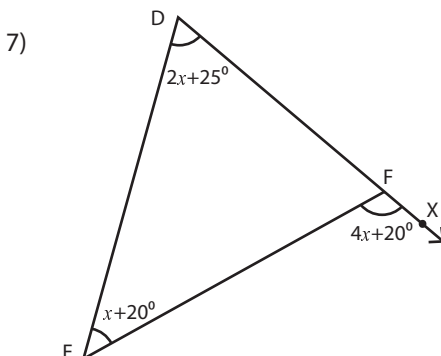
$$x = 80^\circ ; \angle QRX = 110^\circ$$



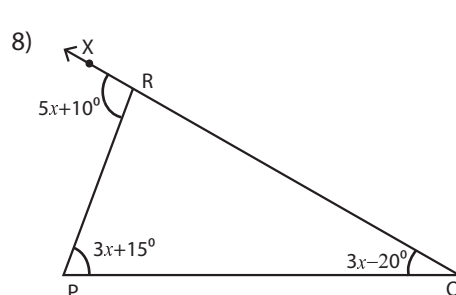
$$x = 60^\circ ; \angle EFX = 115^\circ$$



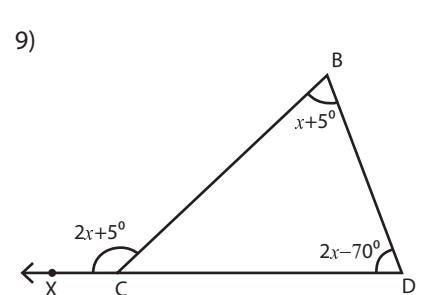
$$x = 40^\circ ; \angle CDX = 86^\circ$$



$$x = 25^\circ ; \angle EFX = 120^\circ$$



$$x = 15^\circ ; \angle PRX = 85^\circ$$



$$x = 70^\circ ; \angle BCX = 145^\circ$$